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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/015,625	12/17/2001	Tohru Takahashi	217193US2S	7548

22850 7590 01/28/2003

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

COLON, GERMAN

ART UNIT

PAPER NUMBER

2879

DATE MAILED: 01/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/015,625

Applicant(s)

TAKAHASHI ET AL.

Examiner

German Colón

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☒ Claim(s) 2 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Objections

1. Claim 2 is objected to because of the following informalities:

In lines 6-7, claim 2 makes reference to “as compared with the thickness of the mask body given by 1”. It is unclear whether the reference “given by 1” indicates that given in claim 1, or if 1 represents the thickness of the mask.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lerner (US 3,707,640) in view of Simpson et al. (US 5,730,887).

Regarding claim 1, Lerner discloses a shadow mask comprising:

a mask body including a substantially rectangular effective area having a minor axis and a major axis extending at right angles to each other; and

a large number of electron beam passage apertures **11** formed in the effective area,

each of the electron beam passage apertures **11** being formed of a communication hole connecting a larger hole opening **11b** in one surface of the effective area and a smaller hole opening **11a** in the other surface of the effective area,

in a cross section of the mask body in the major axis direction, a joint portion between the larger and smaller holes of the apertures in the central portion of the effective area being situated in a central portion in the thickness-direction of the mask body (see Fig. 2 and Col. 4, lines 36-38),

in a cross section of the mask body in the major axis direction, a joint portion between the larger holes and smaller holes of each of the apertures located in the major axis and in the peripheral portion of the effective area being situated closer to one of the surface sides of the effective area than the joint portion of each of the electron beam passage apertures in the central portion of the effective area (see Fig. 2a and Col. 4, lines 46-50).

Lerner fails to disclose “the larger hole being offset against the smaller hole in the direction of the major axis.

However, in the same field of endeavor, Simpson discloses a shadow mask with a plurality of apertures where the larger hole on one surface side of the mask is offset against a smaller hole on the other surface side in the peripheral portion of said mask with the purpose of increasing the clearance for electron beams passing through the apertures (see Col. 4, lines 10-11). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to “offset the larger hole opening against the smaller hole opening in the direction of the major axis” in order to increase the clearance for electron beams passing through the apertures.

Regarding claim 2, Lerner-Simpson discloses said joint portion between the larger and smaller holes of each of at least the electron beam passage apertures in the central portion of the

effective area situated within a range of $0.5 \pm 1/6$ in the thickness direction of the mask body (see Fig. 2 and Col. 4, lines 36-38).

Referring to claim 3, Lerner-Simpson discloses said joint portion of each of the electron beam passage apertures in a region between the minor axis of the effective area and a position at a distance of $2L/3$ in the major-axis direction from the minor is situated within the range of $0.5 \pm 1/6$ in the thickness direction of the mask body (see Fig. 2 and Col. 4, lines 36-38), where L is the length from the minor axis of the effective area, and

said joint portion of each of the electron beam passage apertures in a region at the distance of $2L/3$ or more in the major axis direction from the minor axis of the effective area is situated outside the range of $0.5 \pm 1/6$ in the thickness direction of the mask body (see Fig. 2a and Col. 4, lines 46-50 and 59-61).

The Examiner notes that Lerner teaches a joint portion at a depth t_1 (in a range of $0.5 \pm 1/6$) in the thickness direction of the mask body for apertures in the center of the effective area, which is within a distance of $2L/3$. Further, Lerner teaches a joint portion at a depth t_2 (outside a range of $0.5 \pm 1/6$) in the thickness direction of the mask body for apertures at peripheral portions, which comprise an area outside a distance of $2L/3$).

Referring to claim 4, Lerner discloses a CRT comprising:

an envelope including a substantially rectangular face panel having a phosphor screen in the inner surface thereof (see Col. 3, lines 12-16);

a shadow mask opposed to the phosphor screen,

the mask body including a substantially rectangular effective area having a minor axis and a major axis extending at right angles to each other; and

a large number of electron beam passage apertures **11** formed in the effective area,
each of the electron beam passage apertures **11** being formed of a communication hole connecting a larger hole opening **11b** in one surface of the effective area and a smaller hole opening **11a** in the other surface of the effective area,

in a cross section of the mask body in the major axis direction, a joint portion between the larger and smaller holes of the apertures in the central portion of the effective area being situated in a central portion in the thickness-direction of the mask body (see Fig. 2 and Col. 4, lines 36-38),

in a cross section of the mask body in the major axis direction, a joint portion between the larger holes and smaller holes of each of the apertures located in the major axis and in the peripheral portion of the effective area being situated closer to one of the surface sides of the effective area than the joint portion of each of the electron beam passage apertures in the central portion of the effective area (see Fig. 2a and Col. 4, lines 46-50).

Lerner fails to disclose “the larger hole being offset against the smaller hole in the direction of the major axis.

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the major axis” in order to increase the clearance for electron beams passing through the apertures.

Regarding claims 5 and 6, claims are rejected over the reasons stated in the rejection of claims 2 and 3, respectively.

Prior Art of Record

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Banno et al., in U.S. Patent No. 6,313,574, discloses a mask with apertures comprising a large hole and a small hole, said apertures having different depths.

Tanaka et al., in JP 01-187740, discloses a mask with a plurality of apertures placed in a position $1/3$ to $1/2$ of the plate thickness.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to German Colón whose telephone number is 703-305-5987. The examiner can normally be reached on Monday thru Friday, from 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on 703-305-4794. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7382 for regular communications and 703-308-7382 for After Final communications.

Application/Control Number: 10/015,625

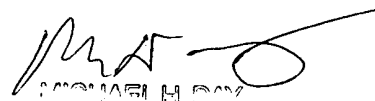
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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.


gc

January 24, 2003


MICHAEL H. DAY
PRIMARY EXAMINER